GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: February 11, 2003, 19:43:19 ; Search time 32.0571 Seconds
(without alignments)
1837.243 Million cell updates/sec

Title: US-09-497-967-6
Perfect score: 2342
Sequence: 1 MKYNILLILIISLFINELRA.....STTFAKFLSISLLFISFYLL 442

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_101002:*
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2: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
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22: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2001.DAT:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	2342	100.0	442	21	AAB25859	48kD i-antigen pro
2	2342	100.0	442	21	AAY97176	48 kDa immobilizat
3	2188	93.4	409	21	AAB25889	IAG48 (G1) surface
4	921	39.3	468	21	AAB25860	55kD i-antigen pro
5	921	39.3	468	21	AAY97177	55 kDa immobilizat
6	914	39.0	468	21	AAB25882	Synthetic 55kD i-a
7	475	20.3	89	21	AAB25862	48kD i-antigen re
8	472	20.2	89	21	AAB25863	48kD i-antigen re
9	451	19.3	83	21	AAB25861	48kD i-antigen re
10	379	16.2	72	21	AAB25865	48kD i-antigen re
11	376	16.1	69	21	AAB25864	48kD i-antigen re
12	219	9.4	1588	23	ABB09437	H. influenzae DXR
13	218.5	9.3	1700	21	AAB18144	Plasmodium falcipa
14	212	9.1	72	21	AAB25888	55kD i-antigen ami
15	208.5	8.9	925	23	AAO14246	Human presenilin e
16	202.5	8.6	3635	23	ABB81589	Mouse laminin alph
17	202.5	8.6	3635	23	AAM50357	Mouse laminin-15 a
18	199.5	8.5	399	21	AAB25890	VspA6-S1 gene prod
19	198	8.5	524	22	AAU07370	G protein-coupled
20	198	8.5	3084	19	AAW50891	Mouse laminin A ch
21	198	8.5	3084	22	AAE11215	Mouse laminin-1 al
22	191.5	8.2	3396	22	ABB64261	Drosophila melanog
23	191	8.2	3070	23	AAO17359	Human laminin M ch
24	191	8.2	3088	21	AAB19794	Human laminin 2 ma
25	191	8.2	3089	21	AAB19792	Human laminin 2 ma
26	191	8.2	3110	16	AAR71730	Merosin major subu
27	191	8.2	3110	20	AAY15460	Human laminin alph
28	191	8.2	3110	21	AAB19791	Human laminin 2 al
29	191	8.2	3110	21	AAB19793	Human laminin 2 al
30	191	8.2	3110	23	AAU84345	Protein LAMA2 diff
31	191	8.2	3150	22	ABG20414	Novel human diagno
32	186	7.9	2901	22	ABG09763	Novel human diagno
33	184.5	7.9	1679	22	AAU07343	1-aminocyclopropan
34	182	7.8	3696	23	AAE17310	Human laminin alph
35	182	7.8	3705	23	AAE17309	Human laminin alph
36	181.5	7.7	3075	19	AAW50892	Human laminin A ch
37	179.5	7.7	76	21	AAB25885	55kD i-antigen ami
38	179	7.6	2743	23	ABB81598	Human laminin alph
39	179	7.6	3084	10	AAP94758	Sequence of mouse
40	179	7.6	3695	23	ABB81588	Human laminin alph
41	178	7.6	3084	21	AAB19796	Mouse laminin 2 ma
42	178	7.6	3106	21	AAB19795	Mouse laminin 2 al
43	177.5	7.6	1607	19	AAW50897	Mouse laminin G1 c
44	176	7.5	448	22	ABB71543	Drosophila melanog
45	175	7.5	1524	20	AAY15458	Human laminin gamm

ALIGNMENTS

RESULT 1
AAB25859
ID AAB25859 standard; Protein; 442 AA.
XX
AC AAB25859;
XX
DT 18-DEC-2000 (first entry)
XX
DE 48kD i-antigen protein sequence.
XX
KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW white spot disease; freshwater fish; immune response; infection control.
XX
OS Ichthyophthirius multifiliis.
XX
PN WO200046373-A1.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02962.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (CORR) CORNELL RES FOUND INC.
PA (CLAR/) CLARK T G.
PA (DICK/) DICKERSON H W.
PA (LINT/) LIN T.
XX
PI Clark TG, Dickerson HW, Lin T;

XX
DR WPI; 2000-506071/45.
XX
PT Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT infection in fish
XX
PS Claim 1; Figure 1; 144pp; English.
XX
CC This invention relates to novel i-antigen polypeptide sequences.
CC I-antigens or immobilisation antigens ar common to a variety of
CC hymenostomatid ciliates and their expression varies in response to
CC environmental stimuli. This invention relates to i-antigens in
CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC invention includes two polypeptide and polynucleotide sequences for two
CC i-antigens, of 48 and 55 kD. Also included in the invention are
CC antibodies capable of binding to the nucleotide sequences and a method
CC for identifying I. multifiliis serotypes using the nucleotide sequences.
CC A composition (containing the i-antigen nucleotide) capable of eliciting
CC an immune response in fish is useful for prophylaxis, treatment or for
CC controlling I. multifiliis infection in fish. Polynucleotide or protein
CC vaccines comprising a portion of the amplified product encoding an
CC antigenic i-antigen polypeptide obtained is also useful for treating or
CC preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC fragments identified in the invention. Sequences AAA97043-A97064
CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ Sequence 442 AA;

Query Match 100.0%; Score 2342; DB 21; Length 442;
Best Local Similarity 100.0%; Pred. No. 2.2e-171;
Matches 442; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy      1 MKYNILLILIIISLFINELRAVPCPDGTQTQAGLTDVGAADLGTCVNCRPNFYYNGGAAQG 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 MKYNILLILIIISLFINELRAVPCPDGTQTQAGLTDVGAADLGTCVNCRPNFYYNGGAAQG 60

Qy     61 EANGNQPFAANNAARGICVPCQINRVGSVTNAGDLATLATQCSTQCPTGTALDDGVTDVF 120
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 EANGNQPFAANNAARGICVPCQINRVGSVTNAGDLATLATQCSTQCPTGTALDDGVTDVF 120

Qy    121 DRSAAQCVKCKPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTSQCVPCQLNKNDSPAT 180
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Db    121 DRSAAQCVKCKPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTSQCVPCQLNKNDSPAT 180

Qy    181 AGAQANLATQCSNQCPTGTVLDDGVTLVFNTSATLCVKCRPNFYYNGGSPQGEAPGVQVF 240
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 AGAQANLATQCSNQCPTGTVLDDGVTLVFNTSATLCVKCRPNFYYNGGSPQGEAPGVQVF 240

Qy    241 AAGAAAAGVAAVTSQCVPCQINKNDSPATAGAQANLATQCSTQCPTGTAIQDGVTLVFSN 300
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    241 AAGAAAAGVAAVTSQCVPCQINKNDSPATAGAQANLATQCSTQCPTGTAIQDGVTLVFSN 300

Qy    301 SSTQCSQCIANYFFNGNFEAGKSQCLKCPVSKTTPAHAPGNTATQATQCLTTCPAGTVLD 360
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Db    301 SSTQCSQCIANYFFNGNFEAGKSQCLKCPVSKTTPAHAPGNTATQATQCLTTCPAGTVLD 360

Qy    361 DGTSTNFVASATECTKCSAGFFASKTTGFTAGTDTCTECTKKLTSGATAKVYAEATQKVQ 420
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    361 DGTSTNFVASATECTKCSAGFFASKTTGFTAGTDTCTECTKKLTSGATAKVYAEATQKVQ 420

Qy    421 CASTTFAKFLSISLLFISFYLL 442
          ||||||||||||||||||||||
Db    421 CASTTFAKFLSISLLFISFYLL 442
```

RESULT 2
AAY97176
ID AAY97176 standard; Protein; 442 AA.
XX
AC AAY97176;
XX
DT 04-DEC-2000 (first entry)
XX
DE 48 kDa immobilization-antigen.
XX
KW BTU1; beta-tubulin; protein expression system; negative selection;
KW paclitaxel sensitivity; cell surface; antigen; protozoa; ciliate;
KW live vaccine; Ichthyophthiius multifiliis; immobilization-antigen;
KW i-antigen; freshwater; fish; protozoacide.
XX
OS Ichthyophthiius multifiliis.
XX
FH Key Location/Qualifiers
FT Misc-difference 1..442
FT /note= "Gln encoded by CAR, TAG or TAA"
XX
PN WO200046381-A1.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02966.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (GAER/) GAERTIG J.
PA (DICK/) DICKERSON H W.
PA (CLAR/) CLARK T G.
XX
PI Gaertig J, Dickerson HW, Clark TG;
XX
DR WPI; 2000-514962/46.
DR N-PSDB; AAA52134, AAA52135.
XX
PT Recombinant expression systems for expressing heterologous nucleic
PT acids and producing recombinant protein, comprises nonpathogenic
PT protozoa such as Tetrahymena resistant to paclitaxel
XX
PS Disclosure; Fig 3A; 83pp; English.
XX
CC Tetrahymena thermophila expresses two major beta-tubulin genes (BTU1 and
CC BTU2), which encode identical beta-tubulin proteins. Either of these two
CC genes (but not both at once) can be disrupted without a detectable change
CC in the cell phenotype. A K350L substitution in the BTU1 beta-tubulin
CC protein confers increased resistance to microtubule-depolymerizing drugs
CC and increased sensitivity to paclitaxel, a microtubule-stabilizing drug.
CC Cells carrying the Btu1-1K350M allele can be transformed to paclitaxel
CC resistance by gene replacement of Btu1-1K350M with a wild-type BTU1 gene
CC fragment, eliminating the need to incorporate a means for positive
CC selection. Where the host organism is not a T. thermophila mutant
CC containing the Btu1-1K350M allele, BTU1::neo1 construct, which
CC substitutes the coding region of the neo1 gene (conferring resistance to
CC parmomycin) for that of BTU1, can be used to generate BTU1 gene knockouts
CC and for positive selection. Heterologous nucleic acids (especially
CC encoding antigenic polypeptides) can be inserted into a BTU gene for
CC successful cell-surface expression that is maintained by way of negative
CC selection. Preferred expression vectors disrupt the Btu1-1K350M gene by
CC homologous recombination-mediated insertion of a heterologous nucleic
CC acid, thereby restoring resistance to paclitaxel in the resulting
CC transgenic host. Transgenic ciliated protozoa are useful as live vaccines
CC for stimulating an immune response in a vertebrate. The transgenic
CC protozoan host cells are also useful for producing polyclonal antibodies
CC (claimed). In particular, Tetrahymena expressing Ichthyophthiius
CC multifiliis immobilization-antigen (i-antigen) protein on their surface
CC are effective vehicles for vaccination of freshwater fish against
CC infection by I. multifiliis.
XX
SQ Sequence 442 AA;

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  Query Match             100.0%;  Score 2342;  DB 21;  Length 442;
  Best Local Similarity   100.0%;  Pred. No. 2.2e-171;
  Matches  442;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 MKYNILLILIISLFINELRAVPCPDGTQTQAGLTDVGAADLGTCVNCRPNFYYNGGAAQG 60
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Db       1 MKYNILLILIISLFINELRAVPCPDGTQTQAGLTDVGAADLGTCVNCRPNFYYNGGAAQG 60

Qy      61 EANGNQPFAANNAARGICVPCQINRVGSVTNAGDLATLATQCSTQCPTGTALDDGVTDVF 120
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 EANGNQPFAANNAARGICVPCQINRVGSVTNAGDLATLATQCSTQCPTGTALDDGVTDVF 120

Qy     121 DRSAAQCVKCKPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTSQCVPCQLNKNDSPAT 180
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 DRSAAQCVKCKPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTSQCVPCQLNKNDSPAT 180

Qy     181 AGAQANLATQCSNQCPTGTVLDDGVTLVFNTSATLCVKCRPNFYYNGGSPQGEAPGVQVF 240
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 AGAQANLATQCSNQCPTGTVLDDGVTLVFNTSATLCVKCRPNFYYNGGSPQGEAPGVQVF 240

Qy     241 AAGAAAAGVAAVTSQCVPCQINKNDSPATAGAQANLATQCSTQCPTGTAIQDGVTLVFSN 300
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     241 AAGAAAAGVAAVTSQCVPCQINKNDSPATAGAQANLATQCSTQCPTGTAIQDGVTLVFSN 300

Qy     301 SSTQCSQCIANYFFNGNFEAGKSQCLKCPVSKTTPAHAPGNTATQATQCLTTCPAGTVLD 360
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Db     301 SSTQCSQCIANYFFNGNFEAGKSQCLKCPVSKTTPAHAPGNTATQATQCLTTCPAGTVLD 360

Qy     361 DGTSTNFVASATECTKCSAGFFASKTTGFTAGTDTCTECTKKLTSGATAKVYAEATQKVQ 420
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Db     361 DGTSTNFVASATECTKCSAGFFASKTTGFTAGTDTCTECTKKLTSGATAKVYAEATQKVQ 420

Qy     421 CASTTFAKFLSISLLFISFYLL 442
          ||||||||||||||||||||||
Db     421 CASTTFAKFLSISLLFISFYLL 442
```

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RESULT 3
AAB25889
ID   AAB25889 standard; Protein; 409 AA.
XX
AC   AAB25889;
XX
DT   18-DEC-2000  (first entry)
XX
DE   IAG48 (G1) surface protein amino acid sequence.
XX
KW   Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW   white spot disease; freshwater fish; immune response; infection control.
XX
OS   Ichthyophthirius multifiliis.
XX
PN   WO200046373-A1.
XX
PD   10-AUG-2000.
XX
PF   04-FEB-2000; 2000WO-US02962.
XX
PR   04-FEB-1999;   99US-0118634.
PR   02-MAR-1999;   99US-0122372.
PR   17-MAR-1999;   99US-0124905.
PR   27-APR-1999;   99US-0131121.
XX
PA   (UYGE-) UNIV GEORGIA RES FOUND INC.
PA   (CORR ) CORNELL RES FOUND INC.
PA   (CLAR/) CLARK T G.
PA   (DICK/) DICKERSON H W.
PA   (LINT/) LIN T.
XX
PI   Clark TG,  Dickerson HW,  Lin T;
XX
DR   WPI; 2000-506071/45.
XX
PT   Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT   multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT   infection in fish  -
XX
PS   Disclosure; Figure 8; 144pp; English.
XX
CC   This invention relates to novel i-antigen polypeptide sequences.
CC   I-antigens or immobilisation antigens ar common to a variety of
CC   hymenostomatid ciliates and their expression varies in response to
CC   environmental stimuli. This invention relates to i-antigens in
CC   Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC   of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC   invention includes two polypeptide and polynucleotide sequences for two
CC   i-antigens, of 48 and 55 kD. Also included in the invention are
CC   antibodies capable of binding to the nucleotide sequences and a method
CC   for identifying I. multifiliis serotypes using the nucleotide sequences.
CC   A composition (containing the i-antigen nucleotide) capable of eliciting
CC   an immune response in fish is useful for prophylaxis, treatment or for
CC   controlling I. multifiliis infection in fish. Polynucleotide or protein
CC   vaccines comprising a portion of the amplified product encoding an
CC   antigenic i-antigen polypeptide obtained is also useful for treating or
CC   preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC   and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC   fragments identified in the invention. Sequences AAA97043-A97064
CC   (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC   isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC   AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ   Sequence   409 AA;
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  Query Match             93.4%;  Score 2188;  DB 21;  Length 409;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-159;
  Matches  409;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      20 AVPCPDGTQTQAGLTDVGAADLGTCVNCRPNFYYNGGAAQGEANGNQPFAANNAARGICV 79
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Db       1 AVPCPDGTQTQAGLTDVGAADLGTCVNCRPNFYYNGGAAQGEANGNQPFAANNAARGICV 60

Qy      80 PCQINRVGSVTNAGDLATLATQCSTQCPTGTALDDGVTDVFDRSAAQCVKCKPNFYYNGG 139
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 PCQINRVGSVTNAGDLATLATQCSTQCPTGTALDDGVTDVFDRSAAQCVKCKPNFYYNGG 120

Qy     140 SPQGEAPGVQVFAAGAAAAGVAAVTSQCVPCQLNKNDSPATAGAQANLATQCSNQCPTGT 199
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 SPQGEAPGVQVFAAGAAAAGVAAVTSQCVPCQLNKNDSPATAGAQANLATQCSNQCPTGT 180

Qy     200 VLDDGVTLVFNTSATLCVKCRPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTSQCVPC 259
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 VLDDGVTLVFNTSATLCVKCRPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTSQCVPC 240

Qy     260 QINKNDSPATAGAQANLATQCSTQCPTGTAIQDGVTLVFSNSSTQCSQCIANYFFNGNFE 319
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     241 QINKNDSPATAGAQANLATQCSTQCPTGTAIQDGVTLVFSNSSTQCSQCIANYFFNGNFE 300

Qy     320 AGKSQCLKCPVSKTTPAHAPGNTATQATQCLTTCPAGTVLDDGTSTNFVASATECTKCSA 379
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Db     301 AGKSQCLKCPVSKTTPAHAPGNTATQATQCLTTCPAGTVLDDGTSTNFVASATECTKCSA 360

Qy     380 GFFASKTTGFTAGTDTCTECTKKLTSGATAKVYAEATQKVQCASTTFAK 428
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Db     361 GFFASKTTGFTAGTDTCTECTKKLTSGATAKVYAEATQKVQCASTTFAK 409
```

```
RESULT 4
AAB25860
ID   AAB25860 standard; Protein; 468 AA.
XX
AC   AAB25860;
XX
DT   18-DEC-2000  (first entry)
XX
DE   55kD i-antigen protein of parasite isolate G5.
```

XX
KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW white spot disease; freshwater fish; immune response; infection control.
XX
OS Ichthyophthirius multifiliis.
XX
PN WO200046373-A1.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02962.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (CORR) CORNELL RES FOUND INC.
PA (CLAR/) CLARK T G.
PA (DICK/) DICKERSON H W.
PA (LINT/) LIN T.
XX
PI Clark TG, Dickerson HW, Lin T;
XX
DR WPI; 2000-506071/45.
XX
PT Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT infection in fish -
XX
PS Claim 3; Figure 3; 144pp; English.
XX
CC This invention relates to novel i-antigen polypeptide sequences.
CC I-antigens or immobilisation antigens ar common to a variety of
CC hymenostomatid ciliates and their expression varies in response to
CC environmental stimuli. This invention relates to i-antigens in
CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC invention includes two polypeptide and polynucleotide sequences for two
CC i-antigens, of 48 and 55 kD. Also included in the invention are
CC antibodies capable of binding to the nucleotide sequences and a method
CC for identifying I. multifiliis serotypes using the nucleotide sequences.
CC A composition (containing the i-antigen nucleotide) capable of eliciting
CC an immune response in fish is useful for prophylaxis, treatment or for
CC controlling I. multifiliis infection in fish. Polynucleotide or protein
CC vaccines comprising a portion of the amplified product encoding an
CC antigenic i-antigen polypeptide obtained is also useful for treating or
CC preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC fragments identified in the invention. Sequences AAA97043-A97064
CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ Sequence 468 AA;

Query Match 39.3%; Score 921; DB 21; Length 468;
Best Local Similarity 41.8%; Pred. No. 1.9e-62;
Matches 214; Conservative 45; Mismatches 139; Indels 114; Gaps 19;

```
Qy       1 MKYNILLILIISLFINELRAVPCPDGTQTQ-AGLTDVGAADLGT---CVNCRPNFYYNGG 56
           || |||:|||||||||:::: || ||:|  ||  |    ||||   ||||: |||||
Db       1 MKNNILVILIISLFINQIKSANCPVGTETNTAGQVD----DLGTPANCVNCQKNFYYNNA 56

Qy      57 AA--------------QGEANGNQPFAAN---------------------------- 71
           ||                |  | |  ||
Db      57 AAFVPGASTCTPCPQKKDAGAQPNPPATANLVTQCNVKCPAGTAIAGGATDYAAIITECV 116

Qy      72 -------------NAARGICVPCQINRVGSVTNAGDLATLATQCSTQCPTGTALDDGVT 117
                        ||    |  | :||||    ||: ||:  ||:  ||||||||||||
Db     117 NCRINFYNENAPNFNAGASTCTACPVNRVGGALTAGNAATIVAQCNVACPTGTALDDGVT 176

Qy     118 DVFDRSAAQCVKCKPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTSQCVPCQLNK--N 175
             : ||  :|||| |||||| :  |  |    |  |          ||| ||   |  |
Db     177 TDYVRSFTECVKCRLNFYYNGNN--GNTP----FNPG---------KSQCTPCPAIKPAN 221

Qy     176 DSPATAGAQANLATQCSNQCPTGTVLDDGVT--LVFNTSATLCVKCRPNFYYNGGSPQGE 233
             : || |  | :  ||:  || ||:   ||   :  ||    |  | |||| |
Db     222 VAQATLGNDATITAQCNVACPDGTISAAGVNNWVAQNTE---CTNCAPNFYNN------N 272

Qy     234 APGVQVFAAGAAAAGVAAVTSQCVPCQINKN-DSPATAGAQANLATQCSTQCPTGTAIQD 292
           ||    |  |          | |:||  ||:  : ||||  | || ||:  || ||||
Db     273 APN---FNPG---------NSTCLPCPANKDYGAEATAGGAATLAKQCNIACPDGTAIAS 320

Qy     293 GVTLVFSNSSTQCSQCIANYFFNG-NFEAGKSQCLKCPVSKTTPAHA-PGNTATQATQCL 350
           | |  :    |:|  | ||::|:| ||:|| |:|  || :|   | |  | |||   ||
Db     321 GAT-NYVILQTECLNCAANFYFDGNNFQAGSSRCKACPANKVQGAVATAGGTATLIAQCA 379

Qy     351 TTCPAGTVLDDGTSTNFVASATECTKCSAGFFASKTTGFTAGTDTCTECTKKLTSGATAK 410
             ||||||| |||:: :  :|:|| ||:| |: :| | : || |||| | |||||||  |
Db     380 LECPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVAGIDTCTSCNKKLTSGAEAN 439

Qy     411 VYAEATQKVQCASTTFAKFLSISLLFISFYLL 442
           :   | : :||    || |||||||  ||:|||
Db     440 LPESAKKNIQC---DFANFLSISLLLISYYLL 468
```

RESULT 5
AAY97177
ID AAY97177 standard; Protein; 468 AA.
XX
AC AAY97177;
XX
DT 04-DEC-2000 (first entry)
XX
DE 55 kDa immobilization antigen.
XX
KW BTU1; beta-tubulin; protein expression system; negative selection;
KW paclitaxel sensitivity; cell surface; antigen; protozoa; ciliate;
KW live vaccine; Ichthyophthiius multifiliis; immobilization-antigen;
KW i-antigen; freshwater; fish; protozoacide.
XX
OS Ichthyophthiius multifiliis.
XX
FH Key Location/Qualifiers
FT Misc-difference 1..468
FT /note= "Gln encoded by CAR or TAA"
XX
PN WO200046381-A1.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02966.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (GAER/) GAERTIG J.
PA (DICK/) DICKERSON H W.
PA (CLAR/) CLARK T G.
XX
PI Gaertig J, Dickerson HW, Clark TG;
XX
DR WPI; 2000-514962/46.
DR N-PSDB; AAA52136.
XX
PT Recombinant expression systems for expressing heterologous nucleic
PT acids and producing recombinant protein, comprises nonpathogenic
PT protozoa such as Tetrahymena resistant to paclitaxel
XX
PS Disclosure; Fig 3A; 83pp; English.
XX

```
CC   Tetrahymena thermophila expresses two major beta-tubulin genes (BTU1 and
CC   BTU2), which encode identical beta-tubulin proteins. Either of these two
CC   genes (but not both at once) can be disrupted without a detectable change
CC   in the cell phenotype. A K350L substitution in the BTU1 beta-tubulin
CC   protein confers increased resistance to microtubule-depolymerizing drugs
CC   and increased sensitivity to paclitaxel, a microtubule-stabilizing drug.
CC   Cells carrying the Btu1-1K350M allele can be transformed to paclitaxel
CC   resistance by gene replacement of Btu1-1K350M with a wild-type BTU1 gene
CC   fragment, eliminating the need to incorporate a means for positive
CC   selection. Where the host organism is not a T. thermophila mutant
CC   containing the Btu1-1K350M allele, BTU1::neo1 construct, which
CC   substitutes the coding region of the neo1 gene (conferring resistance to
CC   parmomycin) for that of BTU1, can be used to generate BTU1 gene knockouts
CC   and for positive selection. Heterologous nucleic acids (especially
CC   encoding antigenic polypeptides) can be inserted into a BTU gene for
CC   successful cell-surface expression that is maintained by way of negative
CC   selection. Preferred expression vectors disrupt the Btu1-1K350M gene by
CC   homologous recombination-mediated insertion of a heterologous nucleic
CC   acid, thereby restoring resistance to paclitaxel in the resulting
CC   transgenic host. Transgenic ciliated protozoa are useful as live vaccines
CC   for stimulating an immune response in a vertebrate. The transgenic
CC   protozoan host cells are also useful for producing polyclonal antibodies
CC   (claimed). In particular, Tetrahymena expressing Ichthyophthiius
CC   multifiliis immobilization-antigen (i-antigen) protein on their surface
CC   are effective vehicles for vaccination of freshwater fish against
CC   infection by I. multifiliis.
XX
SQ   Sequence   468 AA;

  Query Match             39.3%;  Score 921;  DB 21;  Length 468;
  Best Local Similarity   41.8%;  Pred. No. 1.9e-62;
  Matches  214;  Conservative   45;  Mismatches  139;  Indels  114;  Gaps   19;

Qy       1 MKYNILLILIISLFINELRAVPCPDGTQTQ-AGLTDVGAADLGT---CVNCRPNFYYNGG 56
           || |||:||||||||||:::::  || ||:|  ||   |    ||||   ||||: |||||
Db       1 MKNNILVILIISLFINQIKSANCPVGTETNTAGQVD----DLGTPANCVNCQKNFYYNNA 56

Qy      57 AA---------------QGEANGNQPFAAN----------------------------- 71
           ||                |  | |  ||
Db      57 AAFVPGASTCTPCPQKKDAGAQPNPPATANLVTQCNVKCPAGTAIAGGATDYAAIITECV 116

Qy      72 --------------NAARGICVPCQINRVGSVTNAGDLATLATQCSTQCPTGTALDDGVT 117
                         ||    |  | :||||    ||: ||:  ||:  ||||||||||||
Db     117 NCRINFYNENAPNFNAGASTCTACPVNRVGGALTAGNAATIVAQCNVACPTGTALDDGVT 176

Qy     118 DVFDRSAAQCVKCKPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTSQCVPCQLNK--N 175
             : ||  :||||: |||||| :  |  |    |  |           ||| ||   |  |
Db     177 TDYVRSFTECVKCRLNFYYNGNN--GNTP----FNPG---------KSQCTPCPAIKPAN 221

Qy     176 DSPATAGAQANLATQCSNQCPTGTVLDDGVT--LVFNTSATLCVKCRPNFYYNGGSPQGE 233
           : || |  | :  ||:  || ||:   ||   :  ||    |  | |||| |
Db     222 VAQATLGNDATITAQCNVACPDGTISAAGVNNWVAQNTE---CTNCAPNFYNN------N 272

Qy     234 APGVQVFAAGAAAAGVAAVTSQCVPCQINKN-DSPATAGAQANLATQCSTQCPTGTAIQD 292
           ||    |  |           | |:||  ||:  : ||||  | || ||:  || ||||
Db     273 APN---FNPG---------NSTCLPCPANKDYGAEATAGGAATLAKQCNIACPDGTAIAS 320

Qy     293 GVTLVFSNSSTQCSQCIANYFFNG-NFEAGKSQCLKCPVSKTTPAHA-PGNTATQATQCL 350
           | |  :    |:|  | ||::|:| ||:|| |:|  || :|   | |  | |||   ||
Db     321 GAT-NYVILQTECLNCAANFYFDGNNFQAGSSRCKACPANKVQGAVATAGGTATLIAQCA 379

Qy     351 TTCPAGTVLDDGTSTNFVASATECTKCSAGFFASKTTGFTAGTDTCTECTKKLTSGATAK 410
           |||||| |||:: :  :|:|| ||:| |: :| | : || |||| | |||||||  |
Db     380 LECPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVAGIDTCTSCNKKLTSGAEAN 439

Qy     411 VYAEATQKVQCASTTFAKFLSISLLFISFYLL 442
           :   | : :||    || ||||||| ||:|||
Db     440 LPESAKKNIQC---DFANFLSISLLLISYYLL 468


RESULT 6
AAB25882
ID   AAB25882 standard; Protein; 468 AA.

XX
AC   AAB25882;
XX
DT   18-DEC-2000  (first entry)
XX
DE   Synthetic 55kD i-antigen protein L6P.
XX
KW   Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW   white spot disease; freshwater fish; immune response; infection control.
XX
OS   Ichthyophthirius multifiliis.
OS   Synthetic.
XX
PN   WO200046373-A1.
XX
PD   10-AUG-2000.
XX
PF   04-FEB-2000; 2000WO-US02962.
XX
PR   04-FEB-1999;   99US-0118634.
PR   02-MAR-1999;   99US-0122372.
PR   17-MAR-1999;   99US-0124905.
PR   27-APR-1999;   99US-0131121.
XX
PA   (UYGE-) UNIV GEORGIA RES FOUND INC.
PA   (CORR ) CORNELL RES FOUND INC.
PA   (CLAR/) CLARK T G.
PA   (DICK/) DICKERSON H W.
PA   (LINT/) LIN T.
XX
PI   Clark TG,  Dickerson HW,  Lin T;
XX
DR   WPI; 2000-506071/45.
XX
PT   Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT   multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT   infection in fish  -
XX
PS   Example 5; Figure 14; 144pp; English.
XX
CC   This invention relates to novel i-antigen polypeptide sequences.
CC   I-antigens or immobilisation antigens ar common to a variety of
CC   hymenostomatid ciliates and their expression varies in response to
CC   environmental stimuli. This invention relates to i-antigens in
CC   Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC   of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC   invention includes two polypeptide and polynucleotide sequences for two
CC   i-antigens, of 48 and 55 kD. Also included in the invention are
CC   antibodies capable of binding to the nucleotide sequences and a method
CC   for identifying I. multifiliis serotypes using the nucleotide sequences.
CC   A composition (containing the i-antigen nucleotide) capable of eliciting
CC   an immune response in fish is useful for prophylaxis, treatment or for
CC   controlling I. multifiliis infection in fish. Polynucleotide or protein
CC   vaccines comprising a portion of the amplified product encoding an
CC   antigenic i-antigen polypeptide obtained is also useful for treating or
CC   preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC   and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC   fragments identified in the invention. Sequences AAA97043-A97064
CC   (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC   isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC   AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ   Sequence   468 AA;

  Query Match             39.0%;  Score 914;  DB 21;  Length 468;
  Best Local Similarity   41.6%;  Pred. No. 6.4e-62;
  Matches  213;  Conservative   45;  Mismatches  140;  Indels  114;  Gaps   19;

Qy       1 MKYNILLILIISLFINELRAVPCPDGTQTQ-AGLTDVGAADLGT---CVNCRPNFYYNGG 56
           || || :|||||||||:::::  || ||:|  ||   |    ||||   ||||: |||||
Db       1 MKNNIPVILIISLFINQIKSANCPVGTETNTAGQVD----DLGTPANCVNCQKNFYYNNA 56

Qy      57 AA---------------QGEANGNQPFAAN----------------------------- 71
```

```
                ||                  |  | |  ||
Db      57 AAFVPGASTCTPCPQKKDAGAQPNPPATANLVTQCNVKCPAGTAIAGGATDYAAIITECV 116

Qy      72 --------------NAARGICVPCQINRVGSVTNAGDLATLATQCSTQCPTGTALDDGVT 117
                        ||    |  | :||||    ||: ||:  ||:  ||||||||||||
Db     117 NCRINFYNENAPNFNAGASTCTACPVNRVGGALTAGNAATIVAQCNVACPTGTALDDGVT 176

Qy     118 DVFDRSAAQCVKCKPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTSQCVPCQLNK--N 175
             : ||  :||||: |||||| :  |  |    |  |           ||| ||   |  |
Db     177 TDYVRSFTECVKCRLNFYYNGNN--GNTP----FNPG---------KSQCTPCPAIKPAN 221

Qy     176 DSPATAGAQANLATQCSNQCPTGTVLDDGVT--LVFNTSATLCVKCRPNFYYNGGSPQGE 233
             : || |  | :  ||:  || ||:   ||   :  ||    |  | |||| |
Db     222 VAQATLGNDATITAQCNVACPDGTISAAGVNNWVAQNTE---CTNCAPNFYNN------N 272

Qy     234 APGVQVFAAGAAAAGVAAVTSQCVPCQINKN-DSPATAGAQANLATQCSTQCPTGTAIQD 292
           ||    |  |          | |:||  ||:  : ||||  | || ||:  || ||||
Db     273 APN---FNPG---------NSTCLPCPANKDYGAEATAGGAATLAKQCNIACPDGTAIAS 320

Qy     293 GVTLVFSNSSTQCSQCIANYFFNG-NFEAGKSQCLKCPVSKTTPAHA-PGNTATQATQCL 350
           | |  :    |:|  | ||::|:| ||:|| |:|  || :|   | |  | |||   ||
Db     321 GAT-NYVILQTECLNCAANFYFDGNNFQAGSSRCKACPANKVQGAVATAGGTATLIAQCA 379

Qy     351 TTCPAGTVLDDGTSTNFVASATECTKCSAGFFASKTTGFTAGTDTCTECTKKLTSGATAK 410
             ||||||| |||:: :  :|:|| ||:| |: :| | : || |||| | |||||||| |
Db     380 LECPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVAGIDTCTSCNKKLTSGAEAN 439

Qy     411 VYAEATQKVQCASTTFAKFLSISLLFISFYLL 442
           :   | : :||    || |||||||| ||:|||
Db     440 LPESAKKNIQC---DFANFLSISLLLISYYLL 468


RESULT 7
AAB25862
ID   AAB25862 standard; Protein; 89 AA.
XX
AC   AAB25862;
XX
DT   18-DEC-2000  (first entry)
XX
DE   48kD i-antigen  repeat amino acid sequence SEQ ID 9.
XX
KW   Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW   white spot disease; freshwater fish; immune response; infection control.
XX
OS   Ichthyophthirius multifiliis.
XX
PN   WO200046373-A1.
XX
PD   10-AUG-2000.
XX
PF   04-FEB-2000; 2000WO-US02962.
XX
PR   04-FEB-1999;   99US-0118634.
PR   02-MAR-1999;   99US-0122372.
PR   17-MAR-1999;   99US-0124905.
PR   27-APR-1999;   99US-0131121.
XX
PA   (UYGE-) UNIV GEORGIA RES FOUND INC.
PA   (CORR ) CORNELL RES FOUND INC.
PA   (CLAR/) CLARK T G.
PA   (DICK/) DICKERSON H W.
PA   (LINT/) LIN T.
XX
PI   Clark TG,  Dickerson HW,  Lin T;
XX
DR   WPI; 2000-506071/45.
XX
PT   Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT   multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT   infection in fish -
XX
PS   Disclosure; Figure 5a; 144pp; English.
XX
CC   This invention relates to novel i-antigen polypeptide sequences.
CC   I-antigens or immobilisation antigens ar common to a variety of
CC   hymenostomatid ciliates and their expression varies in response to
CC   environmental stimuli. This invention relates to i-antigens in
CC   Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC   of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC   invention includes two polypeptide and polynucleotide sequences for two
CC   i-antigens, of 48 and 55 kD. Also included in the invention are
CC   antibodies capable of binding to the nucleotide sequences and a method
CC   for identifying I. multifiliis serotypes using the nucleotide sequences.
CC   A composition (containing the i-antigen nucleotide) capable of eliciting
CC   an immune response in fish is useful for prophylaxis, treatment or for
CC   controlling I. multifiliis infection in fish. Polynucleotide or protein
CC   vaccines comprising a portion of the amplified product encoding an
CC   antigenic i-antigen polypeptide obtained is also useful for treating or
CC   preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC   and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC   fragments identified in the invention. Sequences AAA97043-A97064
CC   (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC   isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC   AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ   Sequence   89 AA;

  Query Match             20.3%;  Score 475;  DB 21;  Length 89;
  Best Local Similarity   100.0%;  Pred. No. 3.7e-29;
  Matches   89;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy     106 CPTGTALDDGVTDVFDRSAAQCVKCKPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTS 165
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 CPTGTALDDGVTDVFDRSAAQCVKCKPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTS 60

Qy     166 QCVPCQLNKNDSPATAGAQANLATQCSNQ 194
           |||||||||||||||||||||||||||||
Db      61 QCVPCQLNKNDSPATAGAQANLATQCSNQ 89


RESULT 8
AAB25863
ID   AAB25863 standard; Protein; 89 AA.
XX
AC   AAB25863;
XX
DT   18-DEC-2000  (first entry)
XX
DE   48kD i-antigen  repeat amino acid sequence SEQ ID 10.
XX
KW   Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW   white spot disease; freshwater fish; immune response; infection control.
XX
OS   Ichthyophthirius multifiliis.
XX
PN   WO200046373-A1.
XX
PD   10-AUG-2000.
XX
PF   04-FEB-2000; 2000WO-US02962.
XX
PR   04-FEB-1999;   99US-0118634.
PR   02-MAR-1999;   99US-0122372.
PR   17-MAR-1999;   99US-0124905.
PR   27-APR-1999;   99US-0131121.
XX
PA   (UYGE-) UNIV GEORGIA RES FOUND INC.
PA   (CORR ) CORNELL RES FOUND INC.
PA   (CLAR/) CLARK T G.
PA   (DICK/) DICKERSON H W.
PA   (LINT/) LIN T.
XX
PI   Clark TG,  Dickerson HW,  Lin T;
XX
DR   WPI; 2000-506071/45.
```

```
XX
PT   Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT   multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT   infection in fish -
XX
PS   Disclosure; Figure 5a; 144pp; English.
XX
CC   This invention relates to novel i-antigen polypeptide sequences.
CC   I-antigens or immobilisation antigens ar common to a variety of
CC   hymenostomatid ciliates and their expression varies in response to
CC   environmental stimuli. This invention relates to i-antigens in
CC   Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC   of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC   invention includes two polypeptide and polynucleotide sequences for two
CC   i-antigens, of 48 and 55 kD. Also included in the invention are
CC   antibodies capable of binding to the nucleotide sequences and a method
CC   for identifying I. multifiliis serotypes using the nucleotide sequences.
CC   A composition (containing the i-antigen nucleotide) capable of eliciting
CC   an immune response in fish is useful for prophylaxis, treatment or for
CC   controlling I. multifiliis infection in fish. Polynucleotide or protein
CC   vaccines comprising a portion of the amplified product encoding an
CC   antigenic i-antigen polypeptide obtained is also useful for treating or
CC   preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC   and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC   fragments identified in the invention. Sequences AAA97043-A97064
CC   (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC   isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC   AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ   Sequence   89 AA;

  Query Match             20.2%;  Score 472;  DB 21;  Length 89;
  Best Local Similarity   100.0%;  Pred. No. 6.3e-29;
  Matches   89;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy    195 CPTGTVLDDGVTLVFNTSATLCVKCRPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTS 254
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 CPTGTVLDDGVTLVFNTSATLCVKCRPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTS 60

Qy    255 QCVPCQINKNDSPATAGAQANLATQCSTQ 283
          |||||||||||||||||||||||||||||
Db     61 QCVPCQINKNDSPATAGAQANLATQCSTQ 89


RESULT 9
AAB25861
ID   AAB25861 standard; Protein; 83 AA.
XX
AC   AAB25861;
XX
DT   18-DEC-2000  (first entry)
XX
DE   48kD i-antigen  repeat amino acid sequence SEQ ID 8.
XX
KW   Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW   white spot disease; freshwater fish; immune response; infection control.
XX
OS   Ichthyophthirius multifiliis.
XX
PN   WO200046373-A1.
XX
PD   10-AUG-2000.
XX
PF   04-FEB-2000; 2000WO-US02962.
XX
PR   04-FEB-1999;   99US-0118634.
PR   02-MAR-1999;   99US-0122372.
PR   17-MAR-1999;   99US-0124905.
PR   27-APR-1999;   99US-0131121.
XX
PA   (UYGE-) UNIV GEORGIA RES FOUND INC.
PA   (CORR ) CORNELL RES FOUND INC.
PA   (CLAR/) CLARK T G.
PA   (DICK/) DICKERSON H W.
PA   (LINT/) LIN T.
XX
PI   Clark TG,  Dickerson HW,  Lin T;
XX
DR   WPI; 2000-506071/45.
XX
PT   Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT   multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT   infection in fish -
XX
PS   Disclosure; Figure 5a; 144pp; English.
XX
CC   This invention relates to novel i-antigen polypeptide sequences.
CC   I-antigens or immobilisation antigens ar common to a variety of
CC   hymenostomatid ciliates and their expression varies in response to
CC   environmental stimuli. This invention relates to i-antigens in
CC   Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC   of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC   invention includes two polypeptide and polynucleotide sequences for two
CC   i-antigens, of 48 and 55 kD. Also included in the invention are
CC   antibodies capable of binding to the nucleotide sequences and a method
CC   for identifying I. multifiliis serotypes using the nucleotide sequences.
CC   A composition (containing the i-antigen nucleotide) capable of eliciting
CC   an immune response in fish is useful for prophylaxis, treatment or for
CC   controlling I. multifiliis infection in fish. Polynucleotide or protein
CC   vaccines comprising a portion of the amplified product encoding an
CC   antigenic i-antigen polypeptide obtained is also useful for treating or
CC   preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC   and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC   fragments identified in the invention. Sequences AAA97043-A97064
CC   (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC   isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC   AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ   Sequence   83 AA;

  Query Match             19.3%;  Score 451;  DB 21;  Length 83;
  Best Local Similarity   100.0%;  Pred. No. 2.3e-27;
  Matches   83;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy     23 CPDGTQTQAGLTDVGAADLGTCVNCRPNFYYNGGAAQGEANGNQPFAANNAARGICVPCQ 82
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 CPDGTQTQAGLTDVGAADLGTCVNCRPNFYYNGGAAQGEANGNQPFAANNAARGICVPCQ 60

Qy     83 INRVGSVTNAGDLATLATQCSTQ 105
          |||||||||||||||||||||||
Db     61 INRVGSVTNAGDLATLATQCSTQ 83


RESULT 10
AAB25865
ID   AAB25865 standard; Protein; 72 AA.
XX
AC   AAB25865;
XX
DT   18-DEC-2000  (first entry)
XX
DE   48kD i-antigen  repeat amino acid sequence SEQ ID 12.
XX
KW   Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW   white spot disease; freshwater fish; immune response; infection control.
XX
OS   Ichthyophthirius multifiliis.
XX
PN   WO200046373-A1.
XX
PD   10-AUG-2000.
XX
PF   04-FEB-2000; 2000WO-US02962.
XX
PR   04-FEB-1999;   99US-0118634.
PR   02-MAR-1999;   99US-0122372.
```

PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (CORR) CORNELL RES FOUND INC.
PA (CLAR/) CLARK T G.
PA (DICK/) DICKERSON H W.
PA (LINT/) LIN T.
XX
PI Clark TG, Dickerson HW, Lin T;
XX
DR WPI; 2000-506071/45.
XX
PT Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT infection in fish -
XX
PS Disclosure; Figure 5a; 144pp; English.
XX
CC This invention relates to novel i-antigen polypeptide sequences.
CC I-antigens or immobilisation antigens ar common to a variety of
CC hymenostomatid ciliates and their expression varies in response to
CC environmental stimuli. This invention relates to i-antigens in
CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC invention includes two polypeptide and polynucleotide sequences for two
CC i-antigens, of 48 and 55 kD. Also included in the invention are
CC antibodies capable of binding to the nucleotide sequences and a method
CC for identifying I. multifiliis serotypes using the nucleotide sequences.
CC A composition (containing the i-antigen nucleotide) capable of eliciting
CC an immune response in fish is useful for prophylaxis, treatment or for
CC controlling I. multifiliis infection in fish. Polynucleotide or protein
CC vaccines comprising a portion of the amplified product encoding an
CC antigenic i-antigen polypeptide obtained is also useful for treating or
CC preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC fragments identified in the invention. Sequences AAA97043-A97064
CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ Sequence 72 AA;

Query Match 16.2%; Score 379; DB 21; Length 72;
Best Local Similarity 100.0%; Pred. No. 6.5e-22;
Matches 72; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy    353 CPAGTVLDDGTSTNFVASATECTKCSAGFFASKTTGFTAGTDTCTECTKKLTSGATAKVY 412
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 CPAGTVLDDGTSTNFVASATECTKCSAGFFASKTTGFTAGTDTCTECTKKLTSGATAKVY 60

Qy    413 AEATQKVQCAST 424
          ||||||||||||
Db     61 AEATQKVQCAST 72
```

RESULT 11
AAB25864
ID AAB25864 standard; Protein; 69 AA.
XX
AC AAB25864;
XX
DT 18-DEC-2000 (first entry)
XX
DE 48kD i-antigen repeat amino acid sequence SEQ ID 11.
XX
KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW white spot disease; freshwater fish; immune response; infection control.
XX
OS Ichthyophthirius multifiliis.
XX
PN WO200046373-A1.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02962.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (CORR) CORNELL RES FOUND INC.
PA (CLAR/) CLARK T G.
PA (DICK/) DICKERSON H W.
PA (LINT/) LIN T.
XX
PI Clark TG, Dickerson HW, Lin T;
XX
DR WPI; 2000-506071/45.
XX
PT Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT infection in fish -
XX
PS Disclosure; Figure 5a; 144pp; English.
XX
CC This invention relates to novel i-antigen polypeptide sequences.
CC I-antigens or immobilisation antigens ar common to a variety of
CC hymenostomatid ciliates and their expression varies in response to
CC environmental stimuli. This invention relates to i-antigens in
CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC invention includes two polypeptide and polynucleotide sequences for two
CC i-antigens, of 48 and 55 kD. Also included in the invention are
CC antibodies capable of binding to the nucleotide sequences and a method
CC for identifying I. multifiliis serotypes using the nucleotide sequences.
CC A composition (containing the i-antigen nucleotide) capable of eliciting
CC an immune response in fish is useful for prophylaxis, treatment or for
CC controlling I. multifiliis infection in fish. Polynucleotide or protein
CC vaccines comprising a portion of the amplified product encoding an
CC antigenic i-antigen polypeptide obtained is also useful for treating or
CC preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC fragments identified in the invention. Sequences AAA97043-A97064
CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ Sequence 69 AA;

Query Match 16.1%; Score 376; DB 21; Length 69;
Best Local Similarity 100.0%; Pred. No. 1e-21;
Matches 69; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy    284 CPTGTAIQDGVTLVFSNSSTQCSQCIANYFFNGNFEAGKSQCLKCPVSKTTPAHAPGNTA 343
          |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 CPTGTAIQDGVTLVFSNSSTQCSQCIANYFFNGNFEAGKSQCLKCPVSKTTPAHAPGNTA 60

Qy    344 TQATQCLTT 352
          |||||||||
Db     61 TQATQCLTT 69
```

RESULT 12
ABB09437
ID ABB09437 standard; Protein; 1588 AA.
XX
AC ABB09437;
XX
DT 01-JUL-2002 (first entry)
XX
DE H. influenzae DXR related polypeptide sequence.
XX
KW DXR; reductoisomerase; enzyme; non-mevalonate isoprenoid;

KW menaquinone; ubiquinone; virucide; ear infection; conjunctivitis;
KW meningitis; pneumonia; conjunctivitis; bacteraemia; sinusitis;
KW pleural empyema; endocarditis; epiglottitis.
XX
OS Haemophilus influenzae.
XX
FH Key Location/Qualifiers
FT Region 241..1431
FT /note= "region that appears to be accidentally inserted
FT into the sequence, consisting the DXR encoding DNA
FT sequence represented as an amino acid sequence in three
FT letter code"
XX
PN WO200211673-A2.
XX
PD 14-FEB-2002.
XX
PF 09-AUG-2001; 2001WO-US24950.
XX
PR 09-AUG-2000; 2000US-223909P.
XX
PA (SMIK) SMITHKLINE BEECHAM CORP.
PA (SMIK) SMITHKLINE BEECHAM PLC.
XX
PI Jaworski DD, Payne DJ, Slater-Radosti CE, Yan K;
XX
DR WPI; 2002-241698/29.
XX
PT Modulating Haemophilus influenzae DXR reductoisomerase enzyme activity,
PT useful for treating mammals or tissues infected with H. influenzae
PT (e.g. ear infections or pneumonia) by contacting the enzyme with a
PT modulator of its activity -
XX
PS Disclosure; Page 40-44; 44pp; English.
XX
CC The invention relates to modulating an activity of a DXR reductoisomerase
CC enzyme of Haemophilus influenzae, comprising contacting the enzyme with a
CC compound that modulates non-mevalonate isoprenoid biosynthesis -
CC synthesis of menaquinone or ubiquinone. Compounds of the invention act as
CC virucides. The method is useful for treating a mammal or mammalian tissue
CC infected with H. influenzae having DXR reductoisomerase enzyme, e.g. a
CC human or a domestic animal. In particular, the method is useful for
CC treating ear infections, conjunctivitis, meningitis, pneumonia,
CC conjunctivitis, bacteraemia, sinusitis, pleural empyema, endocarditis and
CC epiglottitis. The current sequence represents a H. influenzae DXR
CC reductoisomerase enzyme related polypeptide sequence.
CC Note: The current sequence contains within it the amino acid sequence
CC given in record ABB09436 (DXR enzyme), but this is broken up by a large
CC insertion that appears to be accidentally inserted into the sequence,
CC consisting the DXR encoding DNA sequence represented as an amino acid
CC sequence in three letter code.
XX
SQ Sequence 1588 AA;

Query Match 9.4%; Score 219; DB 23; Length 1588;
Best Local Similarity 26.4%; Pred. No. 5.3e-08;
Matches 125; Conservative 14; Mismatches 219; Indels 116; Gaps 24;

```
Qy      20 AVPCPDGTQT-------QAGLTDVGAADL----GT---CVNCRPNFYYNGGAAQGEAN-- 63
           |  |  || |       |     |||      ||   |  |       |||  |
Db     598 AAACGGGTATTACTGGCAAATAAAGAATCACTGGTAACCTGC-------GGACAGCTTTT 650

Qy      64 ----------GNQPFAANNAARGIC----------VPCQINRVGSVTNAG-DLATLATQC 102
                   |   ||   | | |              |     |:    |   || || |
Db     651 TATTGATGCCGTAAAAAACTATGGCTCGAAGCTTTTACCAGTAGATAGTGAACATAATGC 710

Qy     103 STQCPTGTALDDGVTDVFDRSAAQCVKCKPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAA 162
           :  | |  |     |       | |  |             | |      || |   |
Db     711 TATCTTTCAATCATT-------ACCGCC--------AGAAGCACAAGAAAAAATCGGTTT 755

Qy     163 VTSQCVPCQLNKNDSPATAG---------AQANLATQCSNQCPTGTVLDDG------VTL 207
           |  |  |      :  |||         | |  || |:  |  ||    |       |
Db     756 TTGCCCACTTTCTGAATTAGGTGTAAGTAAAATTATACTCACTGGTTCTGGCGGACCATT 815

Qy     208 VFNTSATLCVKCRPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTSQCVPCQINKNDSP 267
             |:|  |  |           | |      ||   |   |  |: |  |      :
Db     816 CCGTTACACGCC--------ACTTGAA-----CAATTCACCAACATAACACCA----GAA 858

Qy     268 ATAGAQANLATQCSTQCPTGTAIQDGVTLVFSNSSTQCSQCIANYFFNGNFEAGKSQCLK 327
             ||        |: |   ||   | |   :  | :   |      |    | : |
Db     859 CAAGCGGTTGCACACCC---TAATTGGTCTATGGGTAAAAAAATTTCTGT--CGATTCAG 913

Qy     328 CPVSKTT----PAHAPG---NTATQATQCLTT----CPAGTVLDDGTSTNFVASATEC-- 374
           |     |     | | |    |   || | ||    |  |      |  |    :|| |
Db     914 CTACAATGATGAATAAGGGCTTGGAATACATTGAGGCTCGCT---GGCTTTTCAATGCAA 970

Qy     375 -TKCSAGFFASKTTGFTAGTDTCTECTKKLTSGATAKVYAEATQKVQCASTTFA 427
            | |  |   :  ||  ||| | |  |   |  | |  |  | ||    ||:|  |
Db     971 GTGC-GGAAGAAATGGAAGT-TATTATTCATCCACAATCA-ATTATTCATTCTA 1021
```

RESULT 13
AAB18144
ID AAB18144 standard; Protein; 1700 AA.
XX
AC AAB18144;
XX
DT 07-NOV-2000 (first entry)
XX
DE Plasmodium falciparum chromosome 2 related protein SEQ ID NO:1.
XX
KW Plasmodium falciparum; chromosome 2; human malaria parasite; vaccine;
KW antimalarial; malaria; protozoacide; infection; insecticide.
XX
OS Plasmodium falciparum.
XX
PN WO200025728-A2.
XX
PD 11-MAY-2000.
XX
PF 05-NOV-1999; 99WO-US26796.
XX
PR 05-NOV-1998; 98US-0107131.
XX
PA (HOFF/) HOFFMAN S.
PA (CARU/) CARUCCI D.
PA (GARD/) GARDNER M.
PA (VENT/) VENTER J C.
XX
PI Hoffman S, Carucci D, Gardner M, Venter JC;
XX
DR WPI; 2000-365347/31.
XX
PT Proteins encoded by chromosome 2 of the human malarial parasite,
PT Plasmodium falciparum, useful as antimalarial vaccines and in the
PT diagnosis of P.falciparum infection -
XX
PS Disclosure; Page 29-33; 577pp; English.
XX
CC The present invention describes proteins and their fragments (I) encoded
CC by chromosome 2 of the human malarial parasite, Plasmodium falciparum.
CC Also described are: (1) nucleotide sequences (II) encoding (I); and (2)
CC vaccines against P. falciparum infection comprising (I) or (II).
CC (I) and (II) are useful for the development of vaccines against
CC P. falciparum infection. (I) and polyclonal antisera or a monoclonal
CC antibody raised to immunogens comprising the sequences of (I), are
CC useful in the detection of infection with P. falciparum. Furthermore,
CC (I) (especially when they are rifins or secreted or membrane proteins)
CC can aid the identification of drugs to treat or prevent P. falciparum
CC infection, or they can be used to identify drug resistance in
CC P. falciparum. Sequencing of the Plasmodium chromosome 2 and the
CC subsequent identification of proteins encoded by it will help to expand
CC our understanding of parasite biology, a process hampered by the
CC complexity of the parasitic lifecycle, and provide new targets for
CC vaccine and drug development. Parasite resistance to drugs and mosquito
CC resistance to insecticides have led to a resurgence of malaria in many

```
CC   parts of the world, and there is a pressing need for vaccines and new
CC   drugs. AAA70078 to AAA70287 and AAB18144 to AAB18352 represent nucleotide
CC   and protein sequences given in the present invention, but which are not
CC   specifically mentioned within the specification.
XX
SQ   Sequence   1700 AA;

  Query Match             9.3%;  Score 218.5;  DB 21;  Length 1700;
  Best Local Similarity   26.2%;  Pred. No. 6.2e-08;
  Matches  112;  Conservative   16;  Mismatches  202;  Indels   97;  Gaps   16;

Qy      23 CPDGTQTQAGLTDVGAADLGTCVNCRPNFYYNGGAAQG---EANGNQPFAANNAARGICV 79
           |     |       ||   |||           || |    |      ||  |    |
Db     616 CTGAATTGCATGGTGATTTGTC----------AAAAGCAACATATCCAAATGATAAACA 664

Qy      80 PCQINRVGSVTNAGDLATLATQCSTQCPTGTALDDGVTDVFDRSAAQCVKCKPNFYYNGG 139
           |     |  | |       |   :| | ||              || |  |
Db     665 TCCTGAAGGATCAACAGAAAATAATCCATG------------CAAACTTC--------- 702

Qy     140 SPQGEAPGVQVFAAGAAAAGVAAVTSQCVPCQLNKNDSPATAGAQANLAT---------Q 190
           | |    |  | |   |  |: |         :  |  | |  ||
Db     703 --AATATGATT-ATAATACTAATGTTACTCATGGTTTTGGTCAAGAGTATCCTTGTGAAA 759

Qy     191 CSNQCPT-GTV-LDDGVTLVFNTSATLCVKCRPNFYYNGGSPQGEAPGVQVFAAGAAAAG 248
           |   | | ||     | |    | || |          |      | |    |||||||
Db     760 CGGACATAGTAGAACGTTTTTCTGATACAGAA-----GGAGCACAATGTGATAAGAAAAA 814

Qy     249 VAAVTSQCVPCQINKNDSPATAGAQANLATQCSTQ-----CPTGTAIQDGVTLV-FSNSS 302
           |   :          : |||  |     |:|      | | ||   | |    : ::
Db     815 AATAAA--------AGATAATAGTGAAGGAGCTTGCGCTCCATATAGACGATTACATGTA 866

Qy     303 TQCSQCIANYFFNGNFEAGKSQCLKCPVSKTTPAHAPGNTATQATQCLTTCPAGTVLDDG 362
           | |              ||         : ||   |   ||| |    ||  |||
Db     867 TGCGT----------TAG--------AAATTTGGAAAATATCAATGATTATAGT----A 903

Qy     363 TSTNFVASATECTKCSAGFFASKTTGFTA-----GTDTCTECTKKLTSGATAKVYAEATQ 417
             :    |:|     |:     : ||| ||     || |||       : |||   |
Db     904 AAATTAATAATAAACATAATTTATTGGTAGAAGTGTGTCTTGCAGCCAAATATGAAGGGG 963

Qy     418 KVQCAST 424
               ||:|
Db     964 AATCAAT 970


RESULT 14
AAB25888
ID   AAB25888 standard; Peptide; 72 AA.
XX
AC   AAB25888;
XX
DT   18-DEC-2000  (first entry)
XX
DE   55kD i-antigen amino acid repeat sequence SEQ ID 60.
XX
KW   Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW   white spot disease; freshwater fish; immune response; infection control.
XX
OS   Ichthyophthirius multifiliis.
XX
PN   WO200046373-A1.
XX
PD   10-AUG-2000.
XX
PF   04-FEB-2000; 2000WO-US02962.
XX
PR   04-FEB-1999;   99US-0118634.
PR   02-MAR-1999;   99US-0122372.
PR   17-MAR-1999;   99US-0124905.
PR   27-APR-1999;   99US-0131121.
XX
PA   (UYGE-) UNIV GEORGIA RES FOUND INC.
PA   (CORR ) CORNELL RES FOUND INC.
PA   (CLAR/) CLARK T G.
PA   (DICK/) DICKERSON H W.
PA   (LINT/) LIN T.
XX
PI   Clark TG,  Dickerson HW,  Lin T;
XX
DR   WPI; 2000-506071/45.
XX
PT   Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT   multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT   infection in fish -
XX
PS   Disclosure; Figure 5b; 144pp; English.
XX
CC   This invention relates to novel i-antigen polypeptide sequences.
CC   I-antigens or immobilisation antigens ar common to a variety of
CC   hymenostomatid ciliates and their expression varies in response to
CC   environmental stimuli. This invention relates to i-antigens in
CC   Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC   of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC   invention includes two polypeptide and polynucleotide sequences for two
CC   i-antigens, of 48 and 55 kD. Also included in the invention are
CC   antibodies capable of binding to the nucleotide sequences and a method
CC   for identifying I. multifiliis serotypes using the nucleotide sequences.
CC   A composition (containing the i-antigen nucleotide) capable of eliciting
CC   an immune response in fish is useful for prophylaxis, treatment or for
CC   controlling I. multifiliis infection in fish. Polynucleotide or protein
CC   vaccines comprising a portion of the amplified product encoding an
CC   antigenic i-antigen polypeptide obtained is also useful for treating or
CC   preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC   and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC   fragments identified in the invention. Sequences AAA97043-A97064
CC   (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC   isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC   AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ   Sequence   72 AA;

  Query Match             9.1%;  Score 212;  DB 21;  Length 72;
  Best Local Similarity   53.6%;  Pred. No. 4.1e-09;
  Matches   37;  Conservative   12;  Mismatches   20;  Indels    0;  Gaps    0;

Qy     353 CPAGTVLDDGTSTNFVASATECTKCSAGFFASKTTGFTAGTDTCTECTKKLTSGATAKVY 412
           ||||||| |||:: :  :|:|| ||:| |: :| | : || |||| | ||||||| | :
Db       1 CPAGTVLTDGTTSTYKQAASECVKCAANFYTTKQTDWVAGIDTCTSCNKKLTSGAEANLP 60

Qy     413 AEATQKVQC 421
             | : :||
Db      61 ESAKKNIQC 69


RESULT 15
AAO14246
ID   AAO14246 standard; Protein; 925 AA.
XX
AC   AAO14246;
XX
DT   10-MAY-2002  (first entry)
XX
DE   Human presenilin enhancer protein pen-1B derived protein SEQ ID NO: 25.
XX
KW   Human; fruit fly; mouse; rat; cow; presenilin enhancer protein; pen;
KW   Alzheimer's disease; pen-1; pen-1B; pen-2; Aph-2; amyloid beta.
XX
OS   Homo sapiens.
OS   Synthetic.
XX
PN   WO200185912-A2.
XX
PD   15-NOV-2001.
XX
PF   03-MAY-2001; 2001WO-US14648.
XX
PR   05-MAY-2000; 2000US-0568942.
```

XX
PA (EXEL-) EXELIXIS INC.
XX
PI Curtis DT, Francis GR, Ellis MC, Ruddy DA, Nicoll SM, McGrath GJ;
XX
DR WPI; 2002-062245/08.
XX
PT Presenilin enhancer proteins and polynucleotides useful for modulating
PT presenilin function and screening for an agent that modulates the
PT interaction of the protein to a binding target -
XX
PS Disclosure; Page 67-70; 78pp; English.
XX
CC The present invention relates to a method of detecting compounds capable
CC of altering the interaction between a presenilin enhancer protein (such
CC as pen-1, pen-1B, pen-2 and Aph-2) and presenilin. The inhibition of
CC presenilin activity causes the production of amyloid beta to be reduced
CC and and thus be used in the treatment of Alzheimer's disease. The present
CC sequence is a presenilin enhancer protein described in the
CC exemplification of the invention.
XX
SQ Sequence 925 AA;

Query Match 8.9%; Score 208.5; DB 23; Length 925;
Best Local Similarity 25.9%; Pred. No. 1.7e-07;
Matches 108; Conservative 15; Mismatches 207; Indels 87; Gaps 19;

```
Qy      37 GAADLGTCVNCR-PNFYYNGGAAQGEANGNQPFAANNAARGICVPCQINRVGSVTNAGDL 95
           |||   ||  |        |||  |   |          |   |  |          ||
Db     205 GAAATATCTGCTGATCTTTGGAGCGTTTGTCTCTGTCTATATC--CA---------AGAA 253

Qy      96 ATLATQC---STQCPTGTALDDGVTDVFDRSAAQCVKCKPNFYYNGGSPQGEA-PGVQVF 151
           ||  | |   :| | | |           :||    |       ||:  | |  |
Db     254 ATGTTCCGATTTGCATATTATAAACTCTTAAAAAAAGCCAGTGAAGGTTTGAAGAGTATA 313

Qy     152 A----AGAAAAGVAAVTSQCVPCQLNKNDSPATAGAQANLATQCSNQCPTGTVLDDGVTL 207
           |    ||   ||  |  : |  |          |  |   | |:  | | |    | |
Db     314 AACCCAGGTGAGACAGCACCCTC--------TATGCGA--CTGCTGGCCTAT----GTT- 358

Qy     208 VFNTSATLCVKCRPNFYYNGGSPQGEAPGVQVFAAGAAAAGVAAVTSQCVPCQINKNDSP 267
                 |       ||             ||   || |  |: |
Db     359 ----------TCTGGCTTGGGCTTTGGAATCATGAGTGGAGTATTTTCC---------- 397

Qy     268 ATAGAQANLATQCSTQCPTGTAIQDGVTLVFSNSSTQCS----------QCIANYFFNGN 317
           | |  |  |  |:  | ||       |   :      |:          |       |
Db     398 TTTGTGAATACCCTATC-TGAC-----TCCTTGGGGCCAGGCACAGTGGGCATTCATGG- 450

Qy     318 FEAGKSQCLKCPVSKTTPAHAPGNTATQATQCLTTCPAGTV-LDDGTSTNFVASATECTK 376
             || : |  |  : ||        |||    | |||  |       ||         | ||
Db     451 --AGATTCTCCTCAATTCTTCCTTTATTCAGCTTTCATGACGCTGGTCATTATCTTGCTG 508

Qy     377 CSAGFFAS-------KTTGFTAGTDTCTECTKKLT---SGATAKVYAEATQKVQCAS 423
           |: |   :         ||| || | | |  |   |   :||     |  |    ||:
Db     509 CATGTATTCTGGGGCATTG-TATTTTTTGATGGCTGTGAGAAGAAAAAGTGGGGCAT 564
```

Search completed: February 11, 2003, 19:46:19
Job time : 35.0571 secs